



# Evening Community Meeting: Long Term Heavy-Duty Investment Strategy and More

Public Work Group on the Fiscal Year (FY) 2023-24 Funding Plan  
July 18, 2023

# Meeting Agreements

- Be respectful
- Take space, make space
- Listen to understand
- Strive to follow an equity approach when helping to strategize solutions for our clean transportation incentive programs
  - Equity recognizes that advantages and barriers exist, and that, as a result, we do not all start from the same place

# Today's Agenda

Time	Session
5:00 p.m. – 5:15 p.m.	Introduction and Overview
5:15 p.m. – 5:45 p.m.	Long-Term Heavy-Duty Investment Strategy
5:45 p.m. – 5:50 p.m.	<b>Break</b>
5:50 p.m. – 6:20 p.m.	Heavy Duty Investments – Open Discussion
6:20 p.m. – 6:55 p.m.	FY 2023-24 Funding Plan – Open Discussion
6:55 p.m. – 7:00 p.m.	Wrap Up and Next Steps

# Community Evening Meetings

- Monthly community meetings will provide a space for community members across the state to engage with CARB staff.
- Community Meeting Goals
  - Hold a platform for community voices and their priorities
  - Brainstorm solutions for clean transportation needs
  - Highlight the most important information for community
  - Continuous two-way communication between staff and community

# FY 2023-24 Budget (millions)\*

Project Category	Appropriation
<b>Clean Transportation Equity Programs Established Under SB 1275</b>	
• Purchase Incentive Equity Programs	\$80
• Sustainable Transportation and Mobility Equity Projects	\$60
<b>Heavy-Duty Zero-Emission (ZE) Programs</b>	
• ZE Drayage Trucks	\$80
• Prop 98 School Bus Funding	\$375
<b>Air Quality Improvement Program</b>	\$28.64
<b>Total Funding</b>	<b>\$623.64</b>

*\*Some appropriations revised in subsequent amendments to the Budget Act of 2023 are still awaiting the Governor's signature.*

# Funding Plan Development Schedule

Milestone	Date
Daytime Work Group Meetings	July – Oct 2023
Evening Community Meetings	June – Oct 2023
Second Workshop	Aug 31, 2023
Release proposed Funding Plan	October 2023
Board Consideration of Proposed Funding Plan	November 2023
Start implementing projects	December 2023

# Comments and Questions



Use the raised hand function (#2 if calling in by phone)



Please state your name and affiliation before asking a question or making a comment.

# Long-Term Heavy-Duty Investment Strategy



# Long-Term Heavy-Duty Investment Strategy

Annual three-year investment strategy for Clean Transportation Incentives

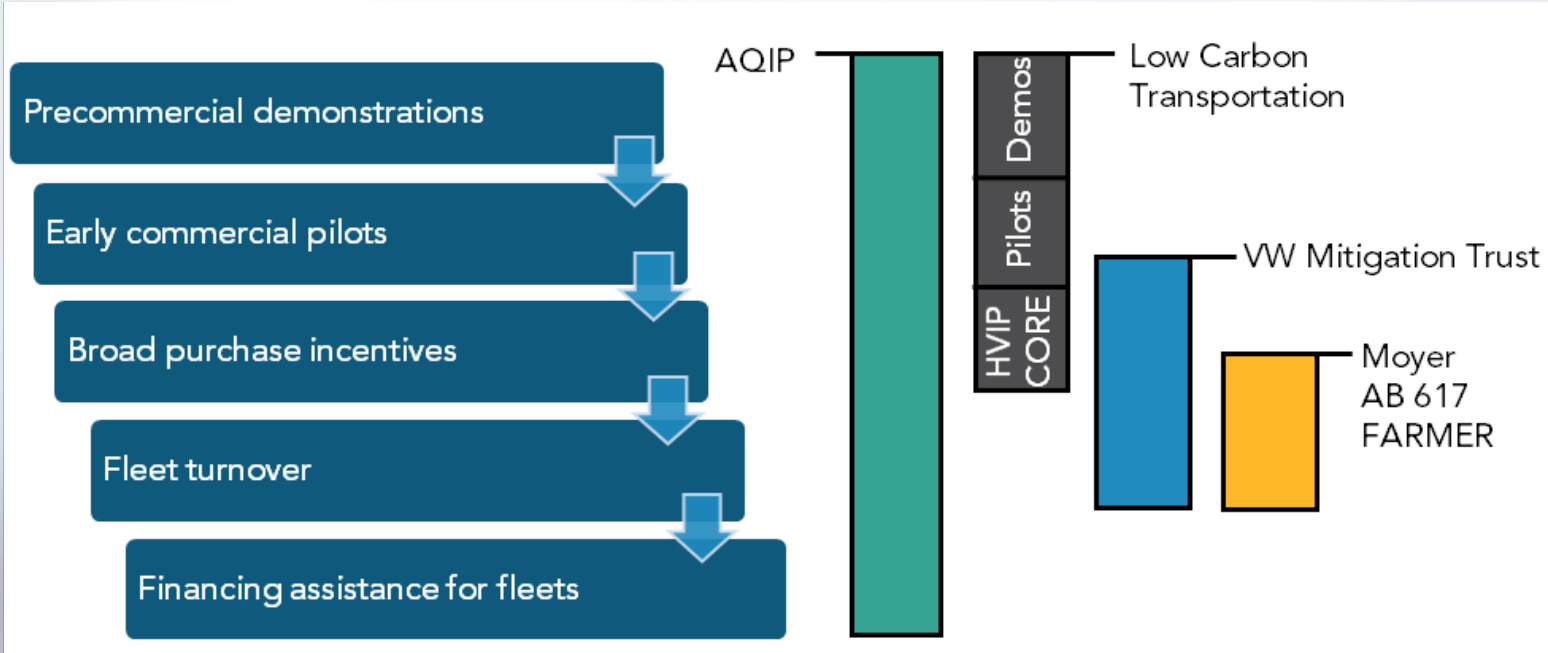
Roadmap for transforming the heavy-duty transportation sector

Outlines priorities for investment

Focus on equity and small businesses

Includes annual report on the State's school bus fleet

# Heavy-Duty Technology Progression Through CARB Incentive Programs



# Metrics of Success

## Creating Healthy Communities

56  
PERCENT

### DAC VOUCHERS

Fifty-six percent of vouchers (HVIP and CORE combined) have funded vehicles and equipment deployed in DACs, as identified in CalEnviroScreen 3.0.



## Supporting Technology Evolution

15+  
THOUSAND

### JOBS CREATED

The incentive dollars spent through HVIP have created nearly 3,500 jobs and spurred ~12,000 jobs from private investment, totaling nearly 15,500 jobs.



## Growing the Green Economy

320  
MODELS

### MANUFACTURERS

There are 67 HVIP- and/or CORE-eligible manufacturers offering 321 vehicle or equipment models.



41  
PERCENT

### SMALL AND PUBLIC FLEET SUPPORT

Forty-one percent of 2022 HVIP vouchers were given to public or small fleets (private entities with <\$10 million annual revenue or fewer than 50 employees).



345  
MILLION

### MILES TRAVELED

There were 345,000,000 cleaner-than-diesel miles traveled in California by HVIP-funded vehicles between 2010 and 2022.



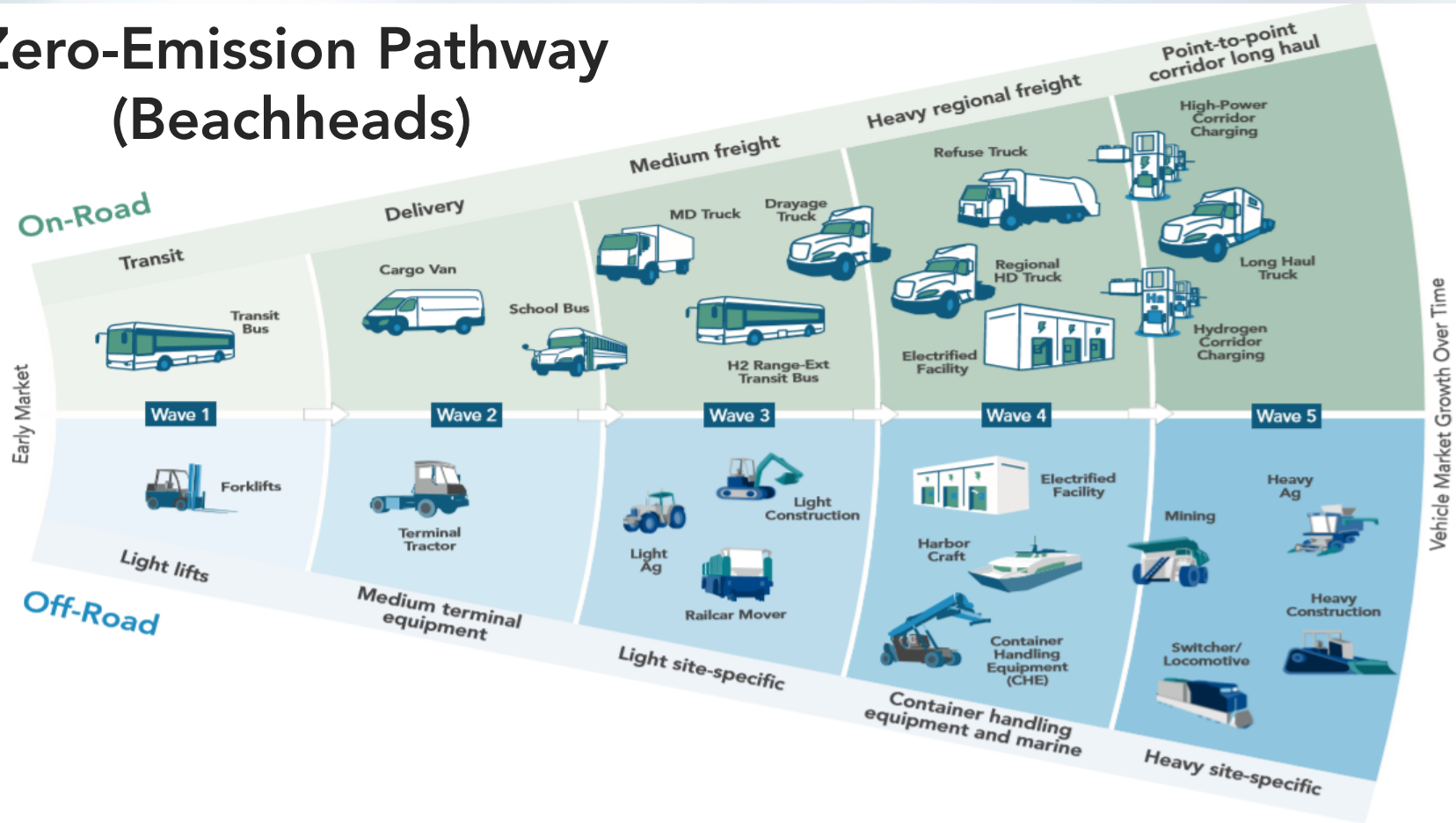
\$3.4  
BILLION

### TOTAL INVESTMENT

Additional public and private spending toward these purchases totaled \$3.4 billion--over \$3 for every \$1 of voucher investment. Leveraged private spending represents purchases redirected from traditional technologies to clean technologies.



# Zero-Emission Pathway (Beachheads)



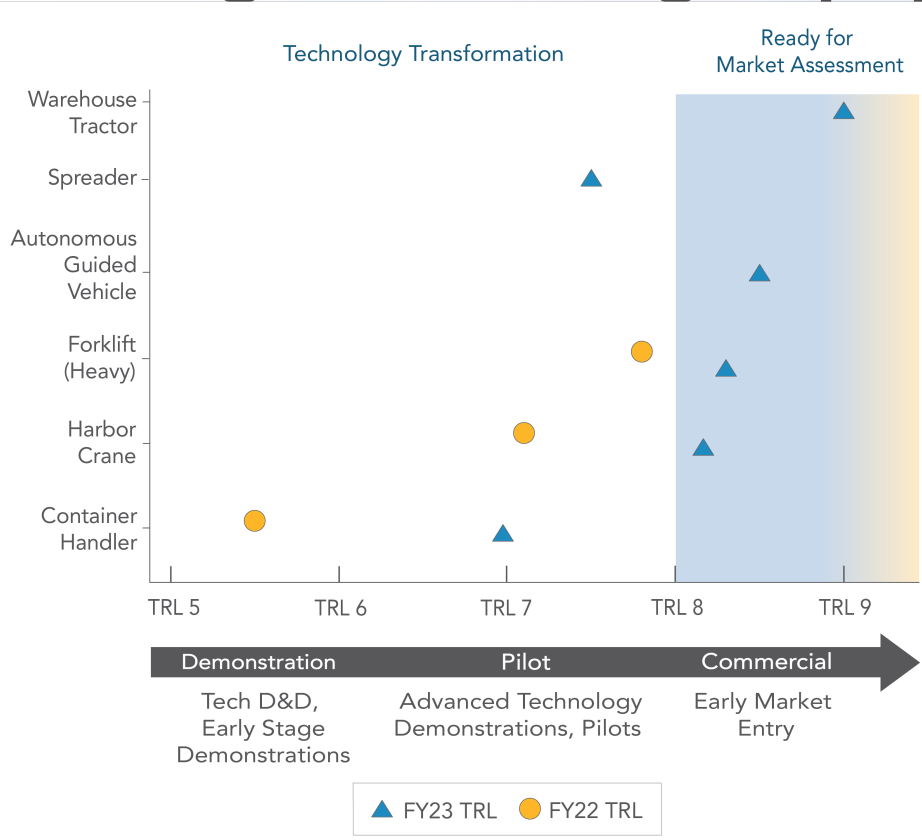
# Technology Status Updates

- Tracks progress toward commercialization for each critical pathway and technology category
  - Technology applications characterized by commercialization stage: demonstration, pilot, and commercial
  - Based on “technology readiness levels” (TRL)
- Complements Market Readiness Indicators

# Technology Status Snapshots – On-road Battery-Electric Vehicles

- All on-road battery-electric vehicle platforms have achieved technology readiness.
  - Technology readiness level (TRL) of 8+
- Beginning with the FY23-24 HD Investment Strategy, platforms that have achieved technology readiness will only be evaluated for market readiness.

# Technology Status Snapshots – Battery-Electric Cargo Handling Equipment



# Market Readiness Indicators



**Production Capacity** – Is this technology in commercial production, or is it limited to prototypes, retrofits, and upfits? Is commercial production significant?



**Cost Parity** – Is the total cost of ownership (TCO) of this technology comparable to internal combustion alternatives (without incentives)?



**Cost Parity with Incentives** – When factoring in available incentive programs (e.g., HVIP, CORE), is the TCO of this technology comparable to internal combustion alternatives?



**Duty Cycle Applicability** – Can this technology sufficiently meet the range, payload capacity, and power requirements of common duty cycles within this application?



**Infrastructure** – Is appropriate charging/refueling infrastructure commercially available? Does it face challenges such as cost, permitting, utility connection/coordination, and/or electricity/fuel prices?

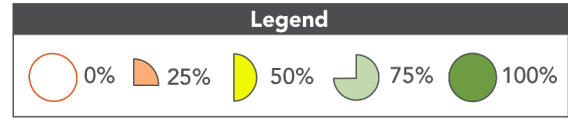
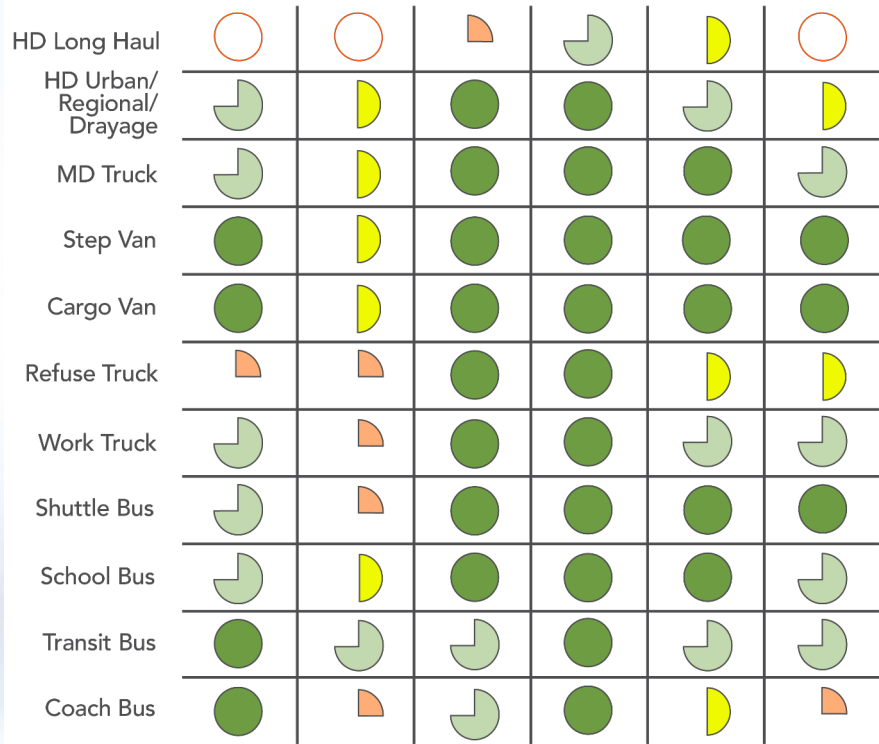


**Workforce/Service Network** – Are professional technicians capable of repairing and/or maintaining ZEVs readily available?



# On-Road Battery-Electric Vehicles Market Readiness Snapshot (2022)

\*TCO: Total Cost of Ownership



# Potential Industry Examples – FY 23-24

- Case studies showcasing advances in technology and industry or government successes
  - Small fleets (ISEF, Cal Fleet Advisor, loan program, etc.)
  - Drayage (port infrastructure, etc.)
  - From Pilot to Scale (e.g., Frito Lay Modesto ZANZEFF project)
  - Temporary/mobile charging infrastructure
  - Coordination between HVIP & EnergIIZE
  - Refuse (2R initiative)
  - Fresno Ride & Drive (June '23)

# Heavy-Duty Investment Priorities

	FY 2024-25	FY 2025-26	FY 2026-27
Demos	<p>\$55-\$95 Million</p> <p>Focus: ZE Construction and Mining Equipment, ZE Heavier Cargo Handling Equipment, ZE Line-Haul Rail, ZE Marine, ZE Aviation</p>	<p>\$65-\$100 Million</p> <p>Focus: ZE Construction and Mining Equipment, ZE Heavier Cargo Handling Equipment, ZE Line-Haul Rail, Emergency and Heavy Specialty Equipment, ZE Aviation</p>	<p>\$XX-\$XXX Million</p> <p>Focus: ZE Line-Haul Rail, Emergency and Heavy Specialty Equipment, ZE Heavy Aviation</p>
Pilots	<p>\$200-\$325 Million</p> <p>Focus: ZE Ag-Construction-Heavier Cargo Handling Equipment, ZE/Hybrid Marine, Strategic Range Extenders, ZE Facilities/Communities/Corridors</p>	<p>\$225-\$350 Million</p> <p>Focus: ZE Longer Range Trucking, ZE Ag-Construction-Mining-Heavier Cargo Handling Equipment, ZE/Hybrid Marine, Strategic Range Extenders, ZE Facilities/Communities/Corridors</p>	<p>\$XXX-\$XXX Million</p> <p>Focus: ZE Longer Range Trucking, ZE Ag-Construction-Heavier Cargo Handling Equipment, ZE/Hybrid Marine, ZE Facilities/Communities/Corridors, ZE Light Aviation</p>
Commercial	<p>1,210-\$1,815 Million</p> <p>Focus: ZE Drayage, ZE Long Haul Trucks, ZE School/Transit, ZE Heavier Cargo Handling Equipment, ZE Switcher Rail, ZE/Hybrid Marine, Financing and Insurance Assistance, ePTOs</p>	<p>\$1,460-\$2,170 Million</p> <p>Focus: ZE Drayage, ZE Long Haul Trucks, ZE School/Transit, ZE Heavier Cargo Handling Equipment, ZE Switcher Rail, ZE/Hybrid Marine, Financing and Insurance Assistance, Heavy/Specialty ePTOs</p>	<p>\$X,XXX-\$X,XXX Million</p> <p>Focus: ZE Drayage, ZE Long Haul Trucks, ZE School/Transit, ZE Heavier Cargo Handling Equipment, ZE Construction and Mining Equipment, ZE Switcher Rail, ZE/Hybrid Marine, Heavy/Specialty ePTOs</p>
Total Funding	\$1,465-\$2,235 Million*	\$1,750-\$2,620 Million*	\$X,XXX-\$X,XXX Million*

# Comments and Questions



Use the raised hand function (#2 if calling in by phone)



Please state your name and affiliation before asking a question or making a comment.

**5-Minute Break**  
**Return at 5:50 p.m.**

# Heavy-Duty Vehicle and Off-Road Equipment Investments Open Discussion

# Comments and Questions



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# **FY 2023-24 Funding Plan Open Discussion**



# Open Discussion

- How can staff ensure that the projects we fund are the projects that the residents most want/need?
- What investment policies/priorities would you like to see in your community?
- What are the biggest barriers when applying for clean transportation funding?
- What metrics of success should CARB track?

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# Wrap-Up and Next Steps

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# Contact Us

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